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Two prime factors are noted in the attainment of excellence in education: (1) an excellent teacher and (2) a situation that makes individualized instruction possible. Researchstudies comparing such grouping methods as homogeneous, heterogeneous, the Joplin Plan, team teaching, and nongrading are reviewed. The author suggests that school organization plans of themselves cannot provide for individual differences, but the more flexible plans free the teacher to do so. The research studies on individualized instruction are compared to show that this approach is more effective than basal group teaching in some cases, but equally or less effective in other cases. Some programs using autoinstructional devices are explained. Included among the tentative conclusions are: (1) individualized reading requires highly competent teachers and (2) less capable pupils are less likely to be successful in individualized reading than in more conventional methods. An extensive bibliography is included. (CM)

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THE RESEARCH BASE FOR INDIVIDUALIZING READING INSTRUCTION

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During the past dozen years leaders in American education have been engaged in an almost frantic search to find the qualities that are required for excellence in education. Some, apparently believing that any kind of change will be viewed by the public as progress, have merely resurrected and renamed various discredited panaceas of the past. Numerous others have hastily climbed on any flashy bandwagon of change that seemed most likely to impress people favorably. Our more responsible leaders, however, have attempted to experiment carefully with old and new plans for improvement before jumping to conclusions.

Qualities of Excellence

It comes as no great surprise to those who have observed teaching for a long time that the experimental evidence points to two prime factors in the attainment of excellence in education: (1) an excellent teacher, and (2) a situation that makes highly differentiated, or individualized, instruction possible.

Studies in various fields, including reading, show that some teachers consistently get better results than others (23, 27, 56). While it is not yet possible to describe the excellent teacher with scientific accuracy, we are learning more about the characteristics that can most often be attributed in various degrees to him or her (28, 52, 53, 66). Because of research and careful observation we are reasonably sure that the outstanding teacher has a good knowledge of his field of instruction, thinks creatively, structures work in a meaningful manner, inspires and motivates children, expresses a sincere interest in their progress and problems, and communicates effectively with them. He works unstintingly on instructional preparation and teaching, assesses progress, diagnoses difficulties, differentiates instruction, and helps pupils develop increasing independence and self-direction.

The importance of differentiating instruction is readily apparent when one analyzes intelligence test data. The mental age range of children in the usual first grade class is four years -- first grade children are four, five, six, seven, and nearly eight years old mentally. This mental age range increases as children grow, until by the time they are completing the sixth grade and approaching entrance into the junior high school, the mental age range is seven and a half or eight years (14). This means that in most sixth and seventh grade classes we have youngsters who have the mental power of average third, fourth, fifth, sixth, seventh, eighth, ninth, and tenth grade students.

Obviously the teacher who assigns the same level and amount of work to all members of a class is asking some to do the impossible while condemning others to endless boredom.

Homogeneous Sectioning Procedures Fail

The first extensive use of intelligence tests in the 1920's revealed this variability of pupils in graded classes, and led to efforts to differentiate teaching by reducing the range of ability through homogeneous class sectioning. Because studies showed, however, that groups structured to be homogeneous on one test score were still highly variable on test scores in other areas (10, 33), schools lost interest in homogeneous sectioning in the 1940's. During the past decade public pressures have created a new hope for ability grouping and have stimulated the restudy of old research and the collection of new data.

As far back as 1936 Hartill found that when 1374 fifth and sixth grade children were taught by the same teachers using heterongeneous and homogeneous organization plans during successive years, they made superior reading gains in heterogeneous classes (29). Thirty years later Goldberg, Passow, and Justman reported another ambitious study involving over two thousand fifth and sixth graders classified in five ability levels. They found that " . . . narrowing the ability range in the classroom on the basis of some measure of general academic aptitude will, by itself, in the absence of carefully planned adaptations of content and method, produce little positive change in the academic achievement of pupils at any ability level" (23).

In 1962 Drews found that ninth grade pupils taught by the same teachers in homogeneous and heterogeneous sections did not differ significantly in reading comprehension (16). More recently Borg very carefully compared achievements of several hundred elementary and secondary students in homogeneous and heterogeneous

sections. When homogeneous sectioning was novel, it produced better reading achievement results, but thereafter it was not better than heterogeneous sectioning. And children in heterogeneous sections made significantly higher scores on the California Study Methods Survey (9). This year Justman reported another study which again showed that a reduction in class variability does not result in increased reading growth (38).

Although a few studies have seemed to support homogeneous sectioning, Borg's analysis revealed that these usually were of faulty design (9).

Because grouping to reduce the class achievement range in one subject does not appreciably reduce the range of class achievement in other subjects (6, 10), the Joplin Plan of redeployment, or interclass grouping, was devised. It requires that classes be resectioned every hour according to achievement for each subject.

At least three researchers have concluded that the redeployment plan produced greater reading gains than ordinary self-contained class instruction (15, 25, 44). But four have shown it to have no significant effect (13, 39, 43, 49), and a couple of others have suggested that it might even have a negative effect on reading growth (48, 51). One writer pointed out that the favorable results were obtained in short experiments, which would be most influenced by novelty effects (45). This view is supported by results of the Morehouse study, which ran for five semesters. During the first semester the children in the redeployment sections made the greater progress, but thereafter the progress of pupils in those groups "was no more than, and sometimes less than that of pupils learning to read in graded classes" (43).

The redeployment plan is particularly objectionable because it actually interferes with true individualization. The regrouping of pupils and their movement to different classrooms increases the difficulty that a teacher has in getting to know the personal and educational problems of each pupil. If a child is with his reading teacher for

only one period daily, it is impossible to diagnose his strengths and deficiencies in connection with reading in all fields of study and to give him the challenge or the corrective help that he needs during odd moments throughout the day. Likewise, the tyranny of the bell prohibits the flexibility of scheduling and the intercorrelation of learning activities which might motivate reading.

Fundamental Inadequacy Shown

When favorable results are produced by any of the homogeneous sectioning procedures, they probably can be attributed to one of three causes -- (1) novelty effect, (2) utilization of teachers who are exceptionally competent and enthusiastic, or (3) comparison with indefensible whole-class teaching procedures. Even a weak half-measure such as the Joplin Plan has a chance of stimulating more progress than a situation in which there is no differentiation at all!

No recent research project explains the fundamental inadequacy of homogeneous grouping plans better than the one reported by Balow in 1962 (7). Balow sectioned ninety-four fifth grade pupils into four so-called homogeneous classes on the basis of their grade-equivalent score averages on eight tests of various reading skills. Before this sectioning the average scores of the individual children on the reading tests ranged from 2.0 to 9.0. Afterward the ranges of average scores for each of the four classes were only 2.0--3.6, 3.6--4.6, 4.6--5.6, and 5.7--9.0. This made it appear that homogeneous sectioning had greatly reduced the amount of individualization required for teaching each class.

However, when the researcher analyzed the scores of individual pupils on all of the eight tests of reading skills, he found that score variation within each of the four classes was often almost as great as the variation among all the scores of all pupils before they were divided into classes. In Class B, for example, where the range of

average scores was only 4.6--5.6, the ranges of individual pupil scores on four of the tests were: for rate, 1.8--12.7, for comprehension, 2.5--11.1, for word meaning, 1.8--7.9, and for alphabetization, 3.1--12.4. Balow properly concluded that the practice of homogeneous grouping does not provide homogeneous groups (7).

This study clearly shows that structuring classes to provide a limited range on one test score, even when that score is the average of several scores on different reading tests, does not appreciably reduce the variability of skills achievement within any class. After "homogeneous" sectioning is done, there is still approximately the same need for individualized teaching as before. Then we only delude ourselves when we think we can teach all of the children in a class as if they were alike. Unfortunately this is what usually happens when there is an administrative effort to do ability sectioning (5).

Better Organizational Plans

After reviewing the experiments with school grouping in several countries of the Western World, Yates concluded that grouping "should be confined, during the primary and early secondary stages, to sub-grouping within classes . . ." (67). Grouping within classes is most often observed when schools are organized according to self-contained, modified self-contained, team teaching, or nongraded plans. However, because the effectiveness of each of these plans depends entirely on the efficiency of each teacher, it is exceedingly difficult to obtain conclusive evidence about the values of the organizational plans themselves.

In assessing the reports on team teaching one authority noted that they "offer assurance that team teaching does at least as well as conventional plans with respect to outcomes measured by standardized tests" (30). A specific study comparing progress of primary and intermediate teams with self-contained classes favored the self-contained

groups during the first year, but found teamed classes gaining during the second year (40).

An NEA survey in 1965 indicated that one-third of 353 responding school systems were trying nongrading in some of their schools (47). True nongrading provides no single educational mold that all children must fit. Instead it offers a general sequence of learning experiences that can be broadened or constricted, accelerated or slowed in accordance with the child's rate and direction of growth. One experiment with this type of program indicated that achievement was less than in graded classes (12), but several others resulted either in no significant achievement differences (32), or in greater gains in nongraded than in ability grouped classes (34, 59). Using a matched pairs design, Hillson found that after three years of work nongraded classes achieved significantly higher on standard reading tests than graded classes (31). Carrying nongrading a step further than some, Rehwaldt and Hamilton discovered that the assignment of children on several age levels in heterogeneous classes was more productive than the usual single age grouping (50).

Instruction Is Individualized by Teachers

School organization plans of themselves cannot provide for individual differences, but the more flexible plans such as self-contained classes, team teaching, and non-grading free the teacher to do so. There is as yet only a limited amount of research to show how successful teachers can be in differentiating study.

It has often been suggested that teachers individualize through various types of subgrouping within classes, and a study done twenty years ago by Jones certainly supports this idea. Fourth grade groups of below average, average, and above average ability all made significantly greater gains in reading when grouped to use materials of five levels of difficulty than did other fourth grades when using only fourth grade materials (36).

Opinions differ on the best forms of grouping, but perhaps this problem can be solved best by adopting a combination of power grouping, skills refinement grouping, and reading activities grouping (56). Groups should be provided with materials never used by other groups, too. The use of different basal materials for each power group has been shown to result in better reading achievement and better attitudes for all except those pupils in top groups (11).

Some teachers have moved beyond grouping to completely individualized teading, wherein each child chooses his own book and is taught individually in conferences that may be held once or twice weekly. Several researchers have concluded that individualized reading is more effective than basal group teaching (1, 3, 17, 35, 62), but too often their experimental designs have been open to criticism for failure to control such factors as availability of books, teacher selection, and instructional time. In some cases individualized reading has produced inferior results for all or some groups of pupils (2, 54, 58), and in others the differences have not been significant (42, 46, 63, 65).

An examination of the research reports leads to these tentative conclusions: (1) Individualized reading can be somewhat successful under certain conditions; (2) It requires highly competent teachers, and those who are not particularly capable should not be asked to adopt it; (3) Children usually enjoy the personal attention of the individual conference and, as a result, develop favorable attitudes toward reading; (4) They often, but not always read more books; (5) The less capable pupils and those having special problems are likely to be less successful in individualized reading than in more structured programs; (6) The lack of a sequential skills program and opportunities for readiness instruction cause teachers to feel doubtful about the adequacy of skills learning; and (7) Teachers are constantly pressed for time to provide conferences

that pupils should have (5, 26, 55, 58).

More and more teachers are combining individualized reading with patterns of grouping within the classroom (19, 57, 63).

Autoinstructional Procedures

Every teacher who wants to individualize teaching is faced with a time problem. Some, in fact, seem to reach a point where attempting to teach an increased number of groups or individual lessons results in a decrease in their effectiveness. Therefore we can hope that the use of autoinstructional techniques will be helpful in the future.

Although several sets of programed reading materials are available (21), the research on this type of individualization is in its infancy. One evaluator found that primary children using programed materials made considerably more progress than those using the usual basal materials (37). Another reviewed several early studies and concluded that "programed instruction techniques can be used effectively at all grade and ability levels . . ." (22).

A research team reporting on ten experiments with one version of programing concluded that "programed tutoring does teach," and "the optimal duration of tutoring sessions appears to be fifteen minutes" (18). Perhaps their most important finding was that "Combinations of programed turoring with classroom teaching are more effective than classroom teaching alone; and, most certainly, although the evidence is less clear, more effective than programed tutoring alone" (18). Others who have reviewed the research agree with this finding (60).

Lindvall and Bolvin have explained a programed curriculum called Individually Prescribed Instruction (41), and they have found that the reading achievement of children in this project is at least as good as that of children in other types of programs (8).

Research with very complicated computerized machinery is now under way in several places. Atkinson and Hansen have described a computer-assisted instruction program with which they are working in California (4), and Spache has detailed its shortcoming (61). A second computer-assisted instruction project labelled PLAN (20) involves experiments in teaching reading in five California schools and four schools in Eastern States.

Moore's talking typewriter project has been expanded into the Edison Responsive Environment, which according to Gotkin and McSweeney, surrounds the learner electronically with the modern equivalents of "the tape recorder, slide projector, electric typewriter, and classroom chalkboard complete with pointer" (24). For those of us who are concerned about the dehumanizing effect of machines, these researchers say that ". . . from the very start the child is spoken to and given instruction by a warm, rhythmic, and whimsical voice" which "invites the child to play games rather than informing him that he is to learn something new" (24)! We must await research findings on both the reading achievement results and the personality effects produced by these complicated devices.

Regardless of the types of tools and techniques that may be employed to individualize reading instruction, the teacher will always hold the key to their effectiveness. We have seen that school organization plans contribute nothing to individualization; they merely impede or facilitate the efforts of the teacher. Likewise the auto-instructional devices that are being developed will not dictate to the teacher; instead they will be powerful tools which the teacher will learn to use to fulfill the educational needs of individual pupils. Excellence in the teaching of reading now requires and always will require an excellent teacher and a situation, including the best of tools, which enables that teacher to provide highly individualized instruction.

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